Original Article

Trends of multiple birth at federal medical centre bida, Northcentral Nigeria

Folorunsho B Adewale, Adewale Ashimi[1], Oyetiunji A Oyewopo[2]

Department of Obstetrics and Gynecology, Federal Medical Centre, Bida, Niger State, [1]Department of Obstetrics and Gynecology, Federal Medical Centre, Birnin-Kudu, Jigawa State, [2]Department of Anatomy, Faculty of Basic Medical Science, University of Ilorin, Ilorin, Nigeria

ABSTRACT

Background: Multiple pregnancy remains a significant determinant of perinatal outcome and a contributor to neonatal morbidity and mortality.

Aim: To determine the prevalence, trend, and fetomaternal outcome of multiple births at Federal Medical Centre, Bida.

Materials and Methods: This was a retrospective study of multiple births at Federal Medical Centre, Bida, Nigeria from 1st January 2010 to 31st December 2013. Data was collected using a pro-forma and then analyzed.

Results: The period prevalence of multiple births was 28.4/1000 births and it ranged from 28.6/1000 births in 2010 to 27.4/1000 births in 2013. Associated with multiple births were prematurity, low birth weight, birth asphyxia, high perinatal mortality, and caesarean section. There was correlation between multiple births and increased maternal age which reached its peak at 25–29 years as well as maternal hypertensive disorders. There was no associated maternal death.

Conclusion: The prevalence of multiple births was 28.4/1000 births and it was associated with prematurity, low birth weight, birth asphyxia, and admission to special care baby unit as well as increased cesarean section rate and maternal hypertensive disorders.

Key words: Fetal outcome; multiple births; trend.

Introduction

Multiple birth occurred when more than one baby is delivered after the age of viability in a single pregnancy, it is the culmination of fertilization of at least two separate ova (dizygotic) or a single fertilized ovum (monozygotic) that subsequently divides into two or more similar structures, each with a potential for developing into a separate individual.[1-3] They make a disproportionate contribution to perinatal morbidity and mortality. The perinatal mortality rate in twins and triplets is 3–5 times[1,2] and 10 times higher,[1,2] respectively, when compared to singleton. Maternal complications also occur more frequently and are more severe.[1,2]

The incidence of monozygotic twins is constant at 3–4 per 1000 births worldwide,[1] while that of dizygotic twins shows a racial variation. These variations are thought to be influenced by complementary factors such as genetic, environmental, dietary, and racial factors.[1,4,5] The incidence of dizygotic twin gestation is the lowest in Asia, intermediate in Whites, and highest in Blacks.[4] In Africa, prevalence of twinning ranges from 33.4 per thousand births in Accra[5] to 20.8 per thousand births in Kenya[6] and 12.4 per thousand

Address for correspondence: Dr. Folorunsho Benard Adewale, Department of Obstetrics and Gynecology, Federal Medical Centre, Bida, Niger State, Nigeria.
E-mail: drfolorunshoadewale80@yahoo.com

Access this article online	
Website: www.tjogonline.com	Quick Response Code
DOI: 10.4103/TJOG.TJOG_57_17	

How to cite this article: Adewale FB, Ashimi A, Oyewopo OA. Trends of multiple birth at federal medical centre bida, Northcentral Nigeria. Trop J Obstet Gynaecol 2018;35:68-72.

births in Johannesburg South Africa.[7] In Nigeria, the prevalence of twinning varied from 21.1 in Kano[8] to 28.0 in Enugu[9] and 37.6 in Ilorin.[10] The highest incidence of twin birth in the world has been noted among the Yoruba ethnic group in Southwestern Nigeria with a twinning rate of 68.1/1000 births.[11]

Multiple pregnancy and birth remains a high-risk pregnancy because it is associated with a substantially higher risk of maternal and perinatal morbidity and mortality worldwide. It is established to have a higher risk of miscarriage, preeclampsia, APH, PPH, iron and folic acid deficiency anaemia, polyhydramnios, preterm labor, PROM, and increased rate of caesarean section.[1-3,12] Cerebral palsy is also more common among multiple birth than single births and much greater among triplets.[12] In a report from Southwest Nigeria, after adjusting for confounding variables, multiple gestations were found to be associated with increased risks of caesarean section, low five-minute Apgar score, neonatal sepsis, severe hyperbilirubinemia, admission to a special-care baby unit (SCBU) underpinned by preterm delivery before 34 weeks, birthweight of less than 2,500 g, and intrauterine growth restriction.[13] Multiple births still remain a significant contributor to maternal and perinatal morbidity and mortality in our environment hence, this study was conducted with the aim to determine the prevalence, trend, and fetomaternal outcome of multiple births at Federal Medical Centre, Bida.

Patients and Methods

This study was conducted at the Federal Medical Centre Bida, a tertiary institution located in a semi-rural setting in Niger state, north central zone Nigeria. According to the 2006 population census, Bida is the second largest city in Niger state,[14] with a population of 185,553 inhabitants. They are predominantly Muslims and farmers. It is located about 90 km from Minna the state capital and 240 km from Abuja. The hospital receives referrals from primary health centres and general hospitals in the state and five neighboring states of Kwara, Kogi, Kaduna, Kebbi, and Oyo as well as FCT Abuja. The hospital is a 265-bedded facility and the department of obstetrics and gynaecology provides antenatal care, emergency obstetrics care, postnatal, and gynaecological services by teams of five (5) consultants, twenty (20) resident doctors, and 8 interns and 74 midwives. An average of 2,400 women deliver in the hospital per annum.

This was a 4-year retrospective study of multiple births within 1st January 2010 to 31st December 2013. The inclusion criteria were all patients (booked and unbooked) with multiple births at the study centre. Parturients with babies whose birth occurred at other facilities were excluded from the study.

A list of multiple deliveries during the study period was extracted from the delivery records obtained from the labour room and the maternal case files were subsequently retrieved from the medical records department. Relevant information retrieved included maternal sociodemographic and obstetric characteristics. Information was obtained using a data collection tool and were analyzed using SPSS version 21.20 (IBM Corp., New York, USA). Qualitative variables were summarized using frequencies and percentages, while mean and standard deviation were used to describe quantitative variables. The study was approved by the ethics and research committee of the hospital.

Results

During the study period, there were 8,278 births of which 235 were multiple giving a prevalence of 28.4/1000births. Of the235 cases, 226 folders were retrieved giving a retrieval rate of 96.2% (226/235).

All the patients were married. Majority 178 (78.18) were Muslims while 48 (21.2%) were Christians and 185 (81.9%) were housewives. One hundred and seventy-six (77.9%) were Nupe, while 34 (15.0%) were Yoruba. One hundred and forty-nine patients (65.9%) had Quranic education while 77 (34.1%) had formal education. The overall mean birth weight of the babies in this study was 2.38 ± 0.54 kg.

Figure 1 shows trend in multiple births rate. The trend in multiple birth rates from 2010 to 2013 is as follows 28.6, 31.8, 22.6, and 27.4 per 1000 births, respectively. There were a total of 218 twin deliveries with a twinning rate of 26.3/1000 births, also there were total of 8 triplets during the study period giving a triplet rate of 1.0/1000 births.

Table 1 shows the sociodemographic characteristics of mothers of multiple births. The age range of the patients was from 15 to 44 years. The mean age was 30.03 ± 4.91 years and the highest frequency 97 (42.9%) occurred among the 25–29 years age group. Women within the age group 15–19 were 3 (1.3%), 20–24 age group 17 (7.5%), while 30–34 had 63 multiples (27.9%) of all births. The 35–39 age range had 41 (18.1%) and a further decline at ≥40 years 5 (2.2%). Patients with parity of 2–4 had 133 (58.9%), followed by primipara with 81 (35.8%) and grandmultipara 12 (5.3%).

There were 15 booked patients in social class 1, 20 in class 2, and 32 in class 3. All the unbooked patients were in social class 3, 4, and 5, as shown in Table 2.[15]

Caesarean deliveries accounted for 121 (53.5%) of all deliveries, while 90 (39.8%) were delivered by spontaneous

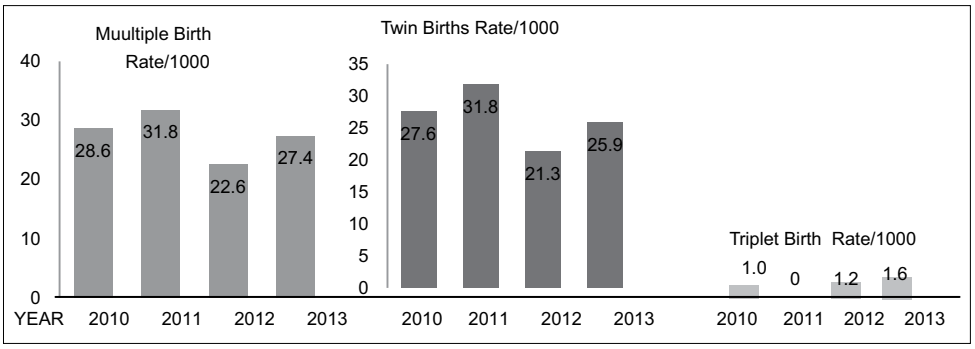

Figure 1: Trends in multiple birth rate (2010–2013)

vertex delivery. Assisted vaginal breech deliveries accounted for 11 (4.9%) and instrumental deliveries 4 (1.8%) [Table 3].

The most common indication for caesarean section was breech presentation in the leading twin 62 (27.4%). This was followed by two or more previous scars 30 (13.3%), footling breech first twin 10 (4.4%), retained second twin 8 (3.5%), triplets 6 (2.7%), and cord prolapse 5 (2.2%).

The most common maternal complication was hypertensive disorders [pre-eclampsia (29.5%) and pregnancy induced hypertension (10%)] which occurred in 39.5%, followed by preterm labor (20.1%), antepartum hemorrhage (5.0%), anemia (3.0%), and postpartum hemorrhage (2.0%).

One hundred and fourteen (50.4%) fetuses were males, while 112 (49.6%) were females. There were 41 (18.1%) preterm deliveries (34 twins, 7 triplets), 38 (16.8%) low birth-weight (LBW) (<2.500 g) babies (31 twins, 7 triplets), 96 (42.3%) cases of birth asphyxia (88 twins, 6 triplets), mainly due to prematurity, pre-eclampsia, and ante-partum hemorrhage (APH), 106 (46.9%) admissions into SCBU (98 twins, 8 triplets) and 16 stillbirths (due to prematurity, placental abruption, and cord prolapse) as well as 4 early neonatal death giving a perinatal mortality rate of 88.5/1000 births.

Discussion

The main finding of this study is the prevalence of multiple births of 28.4/1000 births with twinning rate of 26.3/1000 births and triplet rate of 1.0/1000 births coupled with associated fetomaternal morbidity and high perinatal mortality. This high prevalence of multiple births and the associated fetomaternal complications reflects the burden of multiple pregnancy in our setting.

This was a retrospective hospital-based study with an obvious selection bias and lack of detailed information on the use of fertility drugs, zygosity, and chorionicity could limit the generalization of the key findings, nevertheless, valuable information regarding multiple births in a semi-urban setting, northcentral Nigeria were generated.

Table 1: Maternal sociodemographic characteristics

Parameter	Frequency (%)
Maternal age (years)	
15-19	3 (1.3)
20-24	17 (7.5)
25-29	97 (42.9)
30-34	63 (27.9)
35-39	41 (18.1)
40-44	5 (2.2)
Parity	
1	81 (35.8)
2-4	133 (58.9)
≥5	12 (5.3)

Table 2: Social class and booking status

Social class	Booked	Unbooked
1	15	0
2	30	0
3	32	42
4	0	27
5	0	90
Total	67	159

Table 3: Route of delivery and number of multiple births

Mode of delivery	No of multiple births	%
Vaginal Delivery		
SVD	105	46.5
Vaginal breech deliveries	11	4.9
Instrumental deliveries	4	1.8
Cesarean delivery	121	53.5

SVD – Spontaneous vertex delivery

The twinning rate of 26.3/1000 births recorded in this study is lower than 68.1/1000 births reported in Southwestern Nigeria,[13] but similar to reported 21.1/1000 births from Kano,[8] 26.5/1000 births from Calabar,[16] 28/1000 births from Jos, North central, Nigeria.[17] Equally, it is similar to 20.8/1000 births from Kenya[6] and 26.6 from Kumasi, Ghana.[5] It is, however, higher

than those reported among Caucasians, i.e., 1:67 or more.[2,11] The findings of the present study corroborate the extensive evidence in the literature that twinning rate is highest in Blacks.[1,4,5,18] This study also suggests that the prevalence of twinning is higher in the southern part of the country when compared to the northern part. This is possibly due to the high consumption of yam tubers which has been found to contain a natural phytoestrogen and may stimulate concurrent ovulation from both ovaries.[10]

The findings in this study showed no steady increase in the twinning rate is in agreement with data from Enugu, which showed no increase in twin deliveries during 1985–2005.[9] However, it is in contrast to the findings from Ghana where a steady increase in the incidence of twinning was reported.[5] Our findings is also at variance with the report from the United States of America (USA), in which the rate of twin deliveries increased by 77%, the number of higher order multiple births soared to 459% between 1980 and 2009.[19] Although no data on the use of infertility treatments, such as assisted reproductive technology (ART) or ovulation stimulation, were available, multiple gestations in the population under consideration were likely to be predominantly associated with nonassisted "spontaneous" conception as assisted/technology-driven conception is still not a widely-embraced option for many women in developing countries for economic and cultural reasons.[9,13]

Twin deliveries are documented to occur more commonly with increasing maternal age up to mid-thirties, after which it drops sharply due to increasing follicle stimulating hormone level, and equally common among grand multiparous women,[1,2,19,18] but in this study, the converse was the case as the peak maternal age in the study was 25–29 years and most were multiparous. However, the high rate of multiple births recorded in 25–29 years age group is in agreement with findings by Iyiola in Kwara state, Northcentral, Nigeria.[10] However, this study was hospital based, and therefore, results of the study may not entirely reflect what may be obtained in the larger community. In addition, many of the women in this Muslim-dominated community tend to start their obstetric career at a relatively younger age and by 29 years, majority have completed their families.

The caesarean section rate was 53.5%. This specifies the high-risk nature of multiple pregnancy. Breech presentation in the leading twin is the most common indication for caesarean section, followed by two or more previous caesarean deliveries. To prevent fetal interlocking and its very high attendant fetal mortality, most obstetricians advocate delivery by caesarean section when the leading twin is breech and the second is cephalic.[20,21] This caesarean section rate is higher than 46% reported in USA,[19] and 40.0% reported in Kano[22] but much higher than 12.6% reported in Sagamu.[4] In the USA study, some twins with cephalic/breech presentation were delivered by caesarean section because it has been shown in a study that the risk of anoxia to the second twin increases with vaginal delivery;[19] this may explain the difference observed in the caesarean section rate in this study. The difference with the Sagamu study may be because of the smaller sample size of that study.

The most common maternal complication was hypertensive disorders which occurred in 39.5%, which in agreement with reports by other researchers[13,23] but in contrast to the report from Ile-Ife, in which prelabor rupture of membranes was the most common complication.[24] This attests to the fact that hypertensive disease is a very common complication in pregnancy in the North-central part of Nigeria and is also among the top three causes of maternal mortality in this region.[25]

In our study, 15.6% twins were preterm, which is lower than 22.3% reported in Kano[22] and 33.3% reported in Abakaliki southeast Nigeria.[21] In this study, while only15.6% twins were preterm it was 87.5% in triplets. Similarly, while 45% of twins were admitted into SCBU, all the triplets were admitted. Most admissions were due to prematurity and low birth weights. This suggests that the risk of preterm delivery increases with the number of multiples as well as SCBU admission. Although about two-fifth of the twin deliveries had birth asphyxia most were mild. The high rate of asphyxia in triplets (75%) reflects the fact that most babies were premature. The findings of the present study also corroborate the extensive evidence in the literature that prematurity, low birth weight, and IUGR are the most common immediate infant outcomes of multiple gestations worldwide.[9,10,13,26,27] The increased risk of birth asphyxia/low five-minute Apgar scores, and admission to the SCBU is also consistent with the findings of a multicentre study on multiple gestations in the USA.[28] In a case-control study in Ghana, an increased risk of neonatal admission for intensive care among twins was demonstrated.[29]

The perinatal mortality of 88.5/1000 births is higher than national average of 41/1000 births,[30] it is however lower than 118/1000 births and 178/1000 births reported in Maiduguri, Nigeria[18] and Jordan,[31] respectively.

Conclusion and Recommendations

Multiple pregnancy rate and indeed twin birth rate have not increased significantly at Federal Medical Centre, Bida. Multiple pregnancy remains a high-risk pregnancy with high caesarean section rate, high perinatal mortality, and high

fetal, neonatal, and maternal morbidity. These factors are more likely to mediate other adverse perinatal outcomes, such as asphyxia/low five-minute Apgar scores and admission to the SCBU.

It is, therefore, recommended that pregnant women should be educated on the risks of multiple gestation and the need to have a supervised pregnancy and delivery in facilities with good neonatal support. Further, studies comparing the complication in singleton pregnancy with that of multiple pregnancy are advocated.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

References

1. Fisk NM. Multiple pregnancy. In: Edmonds DK, editor. Dewhurst's Textbook of Obstetrics & Gynaecology. 7th ed. Oxford Blackwell Publishing; 2007. pp 166-76.
2. Cunningham FG, Leveno KJ, Bloom SL, Hauth JC, Gilstrap LC, Wenstrom KD, editors. Williams Obstetrics. 22nd ed. Toronto: McGraw-Hill Medical Publishing Division; 2005. pp 911-48.
3. Bush MC, Pernoll ML. Multiple Gestation. In: DeCherney Alan H, Nathan L, Laufer N, Roman AS, editors. CRRENTDiagnosis & Treatment Obstetric & Gynecologic. 11th ed. New York: McGraw-Hill Medical Publishing division; 2013. pp 301-9.
4. Olatunji AO. Twinning: A retrospective study at Olabisi Onabanjo University Teaching Hospital, Sagamu, Nigeria. Niger Med Pract 2002;41:52-5.
5. Mosuro AA, Agyapong AN, Opoku-fofie M, Deen S. Twining rates in Ghana. Twin Res 2001;4:238-41.
6. Musili F, Karanja JG. Multifoetal pregnancies at a maternity hospital in Nairobi. East Afr Med J 2009;86:162-5.
7. Hain FM, Kromberg JG. Trends in the twinning rate in Johannesburg, South Africa, 1969–1989 and estimated twinning rates for 1990. Twin Res 1998;1:57-64.
8. Galadanci HS, Ashimi AO, Iliyasu Z. Prevalence and outcome of multiple pregnancies in Aminu Kano Teaching Hospital. Niger J Basic Clin Sci 2004;1:18-21.
9. Onah HE, Ugwu GO. Trends in the twining rate in Enugu, Nigeria. J Obstet Gynaecol 2008;28:590-2.
10. Iyiola OA, Oyeyemi FB, Raheem UA, Mark FO. Frequency of twinning in Kwara state, North-Central Nigeria. Egyptian J Med Hum Genet 2013;14:29-35.
11. Mosuro AA. Twining rates in southwest Nigeria. Niger J Sci 1996;30:39-45.
12. Dhakad M, Chaudhary D, Gour V. Fetomaternal outcome in multiple pregnancy: A prospective analysis. Indian J Appl Res 2016;6:418-9.
13. Olusanya BO. Perinatal Outcomes of Multiple Births in Southwest Nigeria. J Health Pop Nutr 2011;29:639-47.
14. www.wikipedia.org/wiki/Bida. [Last accessed on13th November, 2014].
15. Olusanya O, Okpere E, Ezimokhai M. The importance of socioeconomic class in voluntary fertility control in a developing country. W Afr J Med 1985;4:205-12.
16. Bassey EA, Abastaiatai AM, Udoma EJ, Asquo EE. Outcome of twin pregnancy in Calabar. Niger J Med Sci 2004;3:13-5.
17. Aisien AO, Olanrewaju RS, Imade GE. Twins in Jos Nigeria: A seven-year retrospective study. Med Sci Monit 2000;6:945-50.
18. Bobzom DN, Audu BM. Outcome of twin pregnancies in Maiduguri, Nigeria. J Obstet Gynaecol 1997;17:261-3.
19. Martin JA, Hamilton BE, Osterman MJK. Three decades of twin births in the United States, 1980-2009. NCHS data brief, no 80. Hyattsville, MD: National Centre for Health Statistics; 2012.
20. Bryan E. The impact of multiple preterm births on the family. BJOG 2003;110(Suppl 20):24-8.
21. Adeoye S, Ogbonnaya LU, Umeorah OU, Asiegbu O. Concurrent use of multiple antenatal care providers by women utilizing free antenatal care at Ebonyi State University Teaching Hospital, Abakaliki. Afr J Reprod Health 2005;9:101-6.
22. Attah RA, Mohammed Z, Gobir M. A review of twin deliveries in Aminu Kano Teaching Hospital, North-West Nigeria. Niger J Basic Clin Sci 2014;11:3-7.
23. Blondel B, Kammski M. Trends in the occurrence, determinants and consequences of multiple births. Semin Perinatol 2002;26:239-49.
24. Kuti O, Owolabi AT, Fasubaa OB. Outcome of twin pregnancies in a Nigerian teaching hospital. Trop J Obstet Gynaecol 2006;23.
25. Onah H. An overview of the medical causes of maternal morbidity and mortality. In: Leadership Training Module on Safe Motherhood in Benin City Nigeria: Society of Gynaecology and Obstetrics of Nigeria (SOGON); 2016. p. 8-15.
26. Azubuike JC. Multiple births in Igbo women. BJOG 1982;89:77-9.
27. Reynolds MA, Schiere LA, Martin JA, Jen G, Macaluso M. Trends in multiple births conceived using ART, in United States, 1997-2000. Paediatrics 2003;5:1159-66.
28. Refuerzo JS, Momirova V, Peaceman AM, Sciscione A, Rouse DJ, Caritis SN, *et al*. Neonatal outcomes in twin pregnancies delivered moderately preterm, late preterm, and term. Am J Perinatol 2010;27:537-42.
29. Nkyekyer K. Twin and singleton births in Ghana—a case-control study. Twin Res 2002;5:265-9.
30. WHO. Maternal, new born, child and adolescent health: maternal health epidemiology. Available at www.who.int/maternal child adolescent/epidemiology/maternal/en/. [Last accessed on 15th April 2013].
31. Ziadeh S. Outcome of twin pregnancies in North Jordan. J Obstet Gynaecol 2000;20:492-4.